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SPASM OF THE DIAPHRAGM IN THE HORSE

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ST. COLUMB

Spasm of the diaphragm is now rarely met with, but was not infrequently seen 40 or 50 years ago. It is a condition in which I have always been deeply interested—an interest shared even in greater degree by the late Sir F. Smith. In the *Record* of September 5th, 1891, I recorded a series of cases and Professor F. Smith, then lecturing at the Army Veterinary School, Aldershot, contributed, on November 7th following, a paper on the same subject. Thirty-four years later (1925) Smith was still interested and wrote inquiring if I had added to my clinical experience regarding the condition, as there were certain matters which had not been cleared up. His chief difficulty was that if the diaphragm was contracting, say, 80 per minute, the respirations should be 80 also, and not 30 or 50, as the case may be. For long he thought the heart in some way responsible for the abnormal sound, since the rhythm of the latter was usually closely associated with the heart beat, and that it was quite a different affair from hiccough in man. I informed him that in my last case I had palpated the spleen and found the latter moving backward and forward with each thump or spasm. He was delighted and wrote saying that he had arranged with a friend to experiment with a recently-destroyed horse by stimulating the phrenic electrically, and noting whether any thump was produced. He carried out two sets of experiments. In the first he proved that electrical stimulation of the nerves could produce a rhythmical spasm, and in the second he was able to make the important and crucial observation that the sound was produced during relaxation, and not during contraction of the diaphragm as had been supposed. Its mechanism was the same as that which produced the second or "dub" sound of the heart. In the latter the sudden closure of the semi-lunar valves causes the sound, while in the former it results from the sudden bound forward and vibration of the tendon of the diaphragm, at the moment of relaxation, from the pressure of the abdominal organs behind it.

The Aldershot experiments are of great interest from another point of view, as they probably form the last bit of experimental work carried out by Smith, as at that time and after he was fully occupied in writing his "History." I do not think he ever published any accounts of the results, but the notes will probably be found amongst his papers, which are in the care of Dr. Bullock at Red Lion Square.

"Through the invaluable assistance of Colonel Todd, Commandant of the R.A.V. School, Aldershot," wrote Smith to me from St. Leonards on May 10th, 1925, "I stimulated the right phrenic nerve of a horse immediately after destruction on Friday and produced spasm of the diaphragm, and the thumping noise. This positive experiment shows that no mistake has been made and I am inclined to assume that in the natural disorder both phrenics must be out of order.

"Why it never occurred to me do to this sort of thing years ago, when in active practice, with every facility for *post-mortem* enquiry, I do not know. I always made the *post-mortem* examinations myself and never neglected or missed one in my life and I made scores of examinations for others less keen on the dirty job, yet it never occurred to me until recently to put our conjectured spasm of the diaphragm to the crucial test."

Later he writes: "The following month I made an observation by exposing the phrenic nerve at the root of the neck and leaving the chest and abdominal cavities unopened. On stimulating the phrenic *the abdominal muscles responded* and on cutting off the current the dull crack or flop could be distinctly heard as a 'thud.' I now knew that there was no possible confusion with the heart's action. It is the tendon of the diaphragm which produces the flop on being suddenly released, so that the noise is produced as the diaphragm shoots forward."

When Smith was going through the volumes of the *Veterinarian* he sent me copies of the cases of spasm of the diaphragm which he found recorded therein. These included a series by Cartwright, in whose day the condition excited considerable interest. Few cases were recorded after 1845. The syndrome may be regarded as one which came in with the nineteenth century and had almost disappeared with the arrival of the twentieth. The first great factor to affect its incidence was the advent of steam power, then the telegraph and public opinion in regard to over-driving and over-riding, and the decline in the practice of giving physic, with the better management and feeding of horses generally. Finally, the telephone and autocar, with shorter

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hours of work, also contributed directly and indirectly. To-day there are few horses and the roads generally impossible for them. Formerly horses were often called on suddenly to do fast work regardless of their condition and suitability, and perhaps when gorged with food. One can recall the days when the sound of a galloping horse approaching the town might mean serious illness in man or beast, or a fire miles away. The following day the galloped horse might perhaps come under treatment as a case of spasm of the diaphragm. These were the palmy days of equine practice, of Farmer's Glory, and of large country establishments.

HISTORICAL

The celebrated "Nimrod" (Mr. Apperley), in his "Letters on Condition," appears to have been the first to write about spasm of the diaphragm. He describes it as: "An excessive motion of the abdominal muscle coming on when a horse is exhausted after a race with hounds." Mr. Castley, however, in 1831, first alluded to the diaphragm as the seat of the trouble: "The noise in the inside is owing to spasmodic affection of the diaphragm." Coleman, 1833, does not mention it in his lecture on the diaphragm. Mr. Cartwright, of Whitchurch, Salop, reported a series of cases in the *Veterinarian*, 1843 (collected by F. Smith). He describes the phrenic nerve as ecchymosed in front of the diaphragm (this is an important observation, but the condition of the nerve may have been produced by the violent motion of the diaphragm-commotion damage). One of his cases (fatal) followed on a dose of aloes given the previous day for ophthalmia. He noted also that the beating and the pulse followed each other with the greatest regularity, an observation confirmed by Beeson (*Veterinarian*, Vol. 15). This statement is perhaps too sweeping, as in some cases it is almost impossible to number either the pulse or respiration on account of the body commotion. Percival ("Hippo-pathology," 1853) as usual writes instructively and pleasantly regarding the condition. Case records are given by him from the *Veterinarian*. Mr. Toms, Pershore, is quoted: "In the evening, violent palpitation of the diaphragm came on which was discovered by a tremendous loud noise inside the ribs, as though a man was in the thorax beating the ribs with a hammer; pulse almost imperceptible." Venesection, with opium, aperients, and liniments, perfectly cured the patient. All cases appear to have been treated in this way in those days—it is remarkable any of them survived. Of 18 of Cartwright's cases six were fatal. Smith stated that he had never heard of the condition at Camden Town (1875). Robertson ("Practice of Equine Medicine," 1883) does not mention it, and Wallis Hoare quotes largely from Hutyra and Marek and Friedberger and Fröhner.

It is curious that no books contain any reference to the rate of the contractions of the diaphragm nor to the pulse and respiratory ratio. These points were, however, given in the paper which I wrote in 1891 and it was partly in consequence that the Smith correspondence began in 1920 and continued until 1927.

PHYSIOLOGICAL AND PATHOLOGICAL

The diaphragm is a most interesting muscle. Originally it belonged to the neck, but it has been shifted to a distant plane while still retaining its original nerve supply. This has entailed the development of a phrenic nerve trunk on each side, which in its passage through the mediastinum has relation with important organs. Although its fibres are of the striped variety it is under both voluntary and involuntary control, the automatic being the more important. In its rhythmic action it resembles the heart, but in health the heart muscle and the diaphragm contract very differently. In the former it is a sudden explosive contraction; in the latter it is slow and gradual. In the disease under discussion the diaphragm, however, mimics the heart; the contraction becomes explosive and it loses its normal action which has been compared to that of a piston.

It has been proved that if the peripheral end of a cut phrenic nerve is laid over the heart, impulses from the contracting ventricle stimulate the nerve and these are conveyed to the diaphragm, which results in a contraction, so that the diaphragm contracts regularly with each ventricular systole. In view of the intimate relation of the phrenic nerve with the pericardium it is not improbable that under certain conditions, the nature of which we are ignorant, an overflow of impulses from the heart may reach the phrenic nerve and start a contraction of the diaphragm as above described. The character of the respiration during the attack is peculiar. The respiratory centre replies to impulses sent in from the periphery in the usual manner, but the chief instrument in inspiration, the diaphragm, is receiving impulses from another source and its action accordingly becomes riotous. Its ignition is too far advanced, so to speak, and the piston develops a knock, which is the sound we hear. Thus in each respiratory act there are two curves—one representing the complete act and the other a series of interruptions, in the latter, caused by the frequent contraction and relaxation of the diaphragm. If, in a moderately severe case, one places the ear at the horse's nostril, the in and out rushing of air can be heard, but in a bad case the body commotion is so great that there is complete confusion both with the heart lung mechanism and also with the animal itself. The only thing one can be certain of is the continued "thud" or "dub" sound and this can

be easily imitated by taking two or three feet of a driving rein and suddenly bringing it to the stretch with the two hands. It is a left side sound. This may be due to the left phrenic nerve being alone involved, or the liver may be responsible. Certainly the great volume of the horse's bowel with its gaseous contents lends itself to compression and recoil, and one would expect the effect to be more apparent on the left side, on account of the large mass of liver tissue lying on the right, and its close attachment to the diaphragm at the foramen dextrum. When the diaphragm contracts in hiccough (man) the glottis is closed at the same time and the rush of air falling on the latter produces a clicking sound. The glottis is not closed in the horse and there is no click, but as noted above, air currents can be detected constituting a series of diminutive sighs; neither in man does it exhibit any approach to the cardiac rhythm. Although hiccough (man) may be frequently repeated and become very exhausting it is never, as far as I am aware, truly rhythmical as it is in the horse. I have seen so little of spasm of the diaphragm in other animals that I am unable to say, when it does occur, whether it is of the human or equine type.

Fatigue or exhaustion is perhaps the most important predisposing factor.

CLINICAL

Two cases in which the diaphragm beat exceeded 90 to the minute ended fatally. As a rule, the beat continues at the same rate throughout the attack or until it ceases. The prognosis is fairly good, but if the spasm should develop as a complication during the course of an illness it may be of grave omen. The right heart may become overloaded and there is a tendency to lung congestion. Various features have been mentioned in the preceding sections.

Hutyra and Marek state that by a rectal examination the attachments of the diaphragm can be palpated and the convulsive movements of the muscle detected. I do not think this possible. What may be detected is the to and fro movement of the abdominal contents, particularly that of the spleen. There is one condition in particular in which spasm of the diaphragm may occur—the so-called tetany of equines, or trismus. A case of this kind is recorded in the 15th annual report of the D.V.S.U. of S.A. In this case it was supposed that the condition was due to an irritation of the phrenic nerve produced by an œdema or hyperæmia of the areas of lung in the neighbourhood of the base of the heart.

Treatment.—Diffusible stimulants should be employed. It is best to avoid morphia or any depressing measures. If the heart is much embarrassed a moderate bleeding may give relief, although otherwise contra-indicated. The general condition requires treatment rather than the spasm itself. Avoid aloes, as superpurgation readily follows. Large amounts of fluids per stomach-tube would appear to be harmful.

Remarks.

There are two reasons for submitting a paper on so rare a condition. A review may be useful for future generations of veterinary surgeons, because practitioners will meet with it now and again, somewhere or other, and then it appeared advisable to give an account of Sir F. Smith's work. To many it may seem strange that he should have retained an interest in spasm of the diaphragm so long after he had ceased to take an active part in the treatment of animals and when, in his own words, he was becoming a back-number clinically. He knew, however, that here was something unexplained, and therefore an answer was required, and he never lost sight of the matter until the problem had been solved to his own satisfaction. It was a good and plain example of the scientific method and spirit, of which Smith was such an outstanding ornament to the profession. There were many other matters concerning which he was desirous of obtaining information, and it will doubtless interest many readers of the *Record* if I give some extracts from the letters I received from him.

Smithsoniana

Sir Frederick regrets that his life in the Army has been the means of denying him many sources of information connected with other animals than the horse and much indeed connected with this animal in regard to breeding and parturition. He wants to learn "from reliable sources whether the removal of the appendix of the penis of the ram renders the animal in future sterile."

"Have you known of cases in mares and cows where the offspring is always of one sex though served by different sires in different years?"

"Does the cow reject any semen after service as the mare does?" "Have you any idea of the amount of semen a vigorous bull can ejaculate?"

"Have you ever found the Hippomanes in the mouth of a foal or do you know of a reliable witness who had removed it from the mouth?" "Have you ever known the mare eat the placenta as carnivora do?" "Is there anything in animals comparable to the change of life occurring in humans?" His information leads him to believe that the mare and stallion can both breed up to very old age, even. Can this be confirmed in regard to the cow and bull and other animals of the farm? He craves pardon for asking so many questions, but pleads that the profession needs definite and precise information on these and all other matters.

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"22, Chapel Park Road.
May 30th, 1920.

"Dear Mr. Harvey,

"Very many thanks for your letter. There are large stores of information gathered by general practitioners which they carry to the grave with them and the chief cause of this is that our people are not fond of writing. There is a great deal which they cannot do for themselves—such, for example, as you have indicated, the investigation into those causes of disease which need laboratory methods. In this line there are so few workers in the field. As to our schools, they are private institutions struggling to keep their heads above water and handicapped by the absence of a large general hospital and means of sound clinical instruction. We have not only too many professors but too many schools for our needs.

Yours truly,
F. Smith."

. . . . .

November 27th, 1922.

"If it is a fact that there is no acid in the gastric secretion of the foal for the first two or three days after birth, it is new to me. I do not remember the question ever arising. We may have too readily assumed that the foal was identical with all other animals in this respect. Personally, until I see experimental evidence to the contrary, I shall continue to believe that acid is present from the first. I should like to know the authority the writer of the thesis has for his statement."

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January 28th, 1924.

"Hobday's recent excellent address on Cryptorchids has brought back to me a question I have never, for want of opportunity, sufficiently solved. In my day at College we were taught that in the colt the testicles were found in the scrotum at birth; shortly afterwards they were taken up into the inguinal canal and descended again later on. It seems against all reason and against what we know of the physiology of the parts. Will you kindly enlighten me on the subject and so remove a small portion of the ignorance for which I have so constantly reproved myself? Nowhere can I get a definite statement as to whether the mare possesses a hymen. I take it that the question should be readily capable of settlement by the examination of a few foals. I have often looked for it in mares, but in vain; but so many have a foal before joining the service. The case of eclampsia you record in *V.R.*, December 8th, 1923, is very interesting. I should have been inclined to regard it as a heat stroke, owing to the temperature, but I have lived in some of the hottest parts of the globe and never seen a horse, not at work, affected by a high temperature."

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April 2nd, 1924.

"When you have time, please read the enclosed extracts on 'Spasm of the Diaphragm' from the *Veterinarian* of 80 years ago. Ought we not to hang our heads in shame at the thought of having made no progress in connection with the disease? If Cartwright came to life again what would he think? As a result of the inquiries regarding the foal's testicles, the College teaching was erroneous, but everybody fights shy of the question of the hymen.

"There is nothing like a search into the history of the past to realise how much our professional ancestors added to the sum of knowledge, and how carefully we have avoided settling many of the difficulties which they experienced instead of going for them and worrying them out."

Then later he adds: "I feel ashamed of my ignorance, and it is with still greater bitterness that I realise that I have no further opportunity of relieving it through personal observation."

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St. Leonards.
April 5th, 1925.

"I enclose herewith two more records of spasm of the diaphragm which I have just come across. It is strange how very rarely the number of respirations is recorded and yet this is the one pivot of the case. When does a foal lose his fuzzy tail and grow true hair? Also, at what age does the true hair appear? Fancy my having to ask for such information after spending a long life doing nothing else but trying to learn my profession!"

. . . . .

"I wish we could get a paper on the acuteness of hearing and the acuteness of the sense of smell in the domestic animals. Specially contrived but simple experiments would be required. The largest expenditure would be in time. In connection with the sense of smell, this week I dissected for the first time in my life the organ of Jacobson."

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The above constitutes a sort of mixed grill and serves to illustrate the wide range of subjects in which Smith was interested. It may also serve to elicit from research workers, advisers, and clinicians, answers to some of the queries.

In research undertaken by Davidson, of the University of Aberdeen, it was found that an extract from the livers of cod, haddock and whiting is effective in treating pernicious anæmia. Beef liver and extract of horse liver are now widely used for this purpose.

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Worcestershire farmers have decided to ask the Head Office to draw the immediate attention of the Ministry of Agriculture to the importation of bulls from the Dominions, and to ask that "further importations of low-class cattle into this country be stopped."

GRASS TETANY OF DAIRY COWS

C. S. M. HOPKIRK, B.V.Sc., D. MARSHALL, M.R.C.V.S., T. A. BLAKE, M.R.C.V.S.

Grass tetany (grass staggers, lactation tetany, or eclampsia), is a name given to a condition of dairy cows where the animal affected has recently been placed on young, rich, green, quickly growing pasture or rye grass and white clover; and the typical symptoms are those of hyperæsthesia, twitching of muscles, and frequently, tetanic convulsions, in which the animal may die. The death-rate is extremely high, but the percentage incidence of the disease to the cow population is comparatively low, although a number of cases varying in degree may occur on the one farm in one season. The total number of cases is increasing annually. Formerly animals so affected were looked upon as cases of septic metritis, but it has been apparent for some time that metritis is not present in true grass tetany. Blood analyses show, as a general rule, a lowered calcium and magnesium with a tendency to a phosphoric acid content on the high normal level.

Sjollema, who has apparently had more experience with the condition than other workers, does not in all details concur with New Zealand workers' findings. However, the present article is intended for comparison with findings in other countries so that the essential points of the disease may the more clearly be recognised by such comparison.

Sjollema differentiates grass tetany from milk fever, acetonæmia and osteomalacia and this, up to a certain point, can well be understood. There are, however, cases midway between milk fever and grass tetany, both in blood chemical findings and clinically, which rather tend to bring these two diseases together in spite of the difference in blood magnesium found on analysis. There is, too, the fact that it is in districts where milk fever is prevalent that grass tetany occurs. This is well exemplified by the two dairying districts of Taranaki and Waikato provinces, the former being free and the latter badly infected. Two of the authors, T. A. Blake and D. Marshall, are engaged in field work on the condition in the Waikato, while C. S. M. Hopkirk is engaged on the laboratory side.

GRASS TETANY AS IT OCCURS IN THE WAIKATO

Grass tetany has been recognised in the Waikato district of New Zealand for at least 15 years. During the past seven or eight years it has apparently become more frequent. Dayus described the condition in 1928. It has come to be expected as seasonal during a very definite period from the third week in July till the end of September. The first cases are seen each season in parts of the districts where growth appears earliest.

The distribution in other parts of the North Island appears interesting. Taranaki, with intensive dairying, and somewhat similar farming methods, is evidently free from it. In the Manawatu (southern centre) and the Wairarapa, it occurs only occasionally; in certain seasons, on the rich flats of the Hawkes Bay district, cases have been numerous in some years in the past but of little importance in recent years—while it has also been known round Gisborne. It is not reported from the new dairying districts of North Auckland. No cases have ever been identified in the South Island. Compared with other districts, much of Waikato soil includes a high proportion of air- or water-borne pumice. It is comparatively light land, responding readily to artificial manures, which are freely used as top dressings at rates of 2 to 4 cwt. The average yearly rainfall is in the neighbourhood of 50 inches.

Farm Practice.—The usual method of handling dairy cows during winter and spring is that the milking season ends some time in May. The cows are fed freely, on certain paddocks, with hay, ensilage, or both, and occasionally the addition of roots (mangolds and turnips). In addition, a certain amount of grass is always being consumed, as there is some growth of pastures during the whole of most winters. After calving, which is timed in the majority of herds to begin on July 1st, the cows having had four to eight weeks' spell, the grazing is transferred to certain paddocks which have had an autumn top-dressing and have been shut up for several weeks. Hay and ensilage, or both, are fed night and morning. The cows are at pasture, therefore, during the whole year, except during the actual milking periods of about two hours twice daily in the season. Free growth of grass begins in many parts early in August. Most farms are well sub-divided so that there may be a number of fresh paddocks available for grazing with consequent changes.

Mineral Supplies.—On many farms the practice of putting burnt lime in all drinking water troughs is followed. Mineral licks of varying composition, nearly always including bone-meal and salt, are extensively used, particularly after calving—such measures do not appear to influence occurrence of cases.

Top-dressing of Land.—Superphosphate is the usual artificial manure employed throughout the Waikato, but basic slag has in the past been largely used in Taranaki.

Occurrence of Cases.—Cases appear rarely before calving: usually at any interval from one or two days to two months after calving, but odd cases occur in cows up to six months calved. One or two cases have been seen in first calvers; more often, affected cows are at

their best producing age, have a reputation as high producers, are in good condition, and of comparatively strong physical type. On the other hand, cases were seen in at least two herds where cows were in only moderate condition, and backward as to coat. No definite connection between methods of winter management and occurrence of cases has yet been established. However, when the complete history of a number of cases or outbreaks is studied there does frequently appear a marked coincidence between changes to fresh paddocks, and the immediate subsequent occurrence of cases. In one outbreak five animals were affected within 24 hours, the second day after a full period on a new pasture. In another instance each case occurred immediately after a change to a fresh paddock. While it has been an apparent rule that a serious outbreak in one season has been followed by several years of freedom from the disease, on two or three farms one or two cases have been recorded in each of several seasons.

Symptoms.—Occasionally some premonitory signs may be noted by an observant owner. The cow may seem a little more nervous in the shed, may cringe when touched, or when walking through the doorway, or may bellow when being leg-roped. Other cases develop more rapidly. The animal has an excited appearance, rather high carriage of head, exaggerated muscular action, sometimes "hackney-gait." There are tremors of shoulder and facial muscles. Mentality is affected, and a previously quiet animal may show a disposition to charge. If the subject be startled the eyes blink, and the membrana nictitans is protruded as in tetanus. Temperature is rarely altered. The pulse is accelerated. There is occasional dribbling of urine. In this stage, very little disturbance, such as taking on to a concrete yard or into a shed, or attempts to drench may bring on a convulsive seizure. The animal falls on its side, makes violent movements with the limbs, which are rigidly extended, the head is drawn back and the jaws clenched. Evidently owing to spasm of the diaphragm, respirations are jerky and difficult, sometimes suppressed for 15-20 seconds, with several following in rapid succession. Consciousness is retained. Such a seizure may come on without previous warning, and pass off in five to 10 minutes, the animal becoming and remaining apparently quite normal, and it may last any time up to three or four hours. Death may occur at any stage during the seizure.

The convulsions may lapse into a condition of dulness, with some twitching of muscle groups but no struggling—the pulse is fast and weak, the animal remains down, has no appetite, and there is no response to various treatments, including calcium. Death usually occurs in two to three days.

Certain of the milder cases may merely show undue stiffness and some hyperæsthesia, but may continue to feed. In the course of two or three days they become gaunt, apparently due to drawing up of the abdominal muscles. Such subjects may have convulsions at any time, or they may gradually and imperceptibly recover.

Several cases have come under notice of a cow surviving an attack one season, and milking well thereafter, only to succumb to an attack in the following season. This would suggest a marked individual idiosyncrasy, or susceptibility—which undoubtedly is an important factor in the disease.

Pasture analyses have been carried out by the Chief Chemist of the Department of Agriculture (Mr. B. C. Aston) and these have been extracted from his reports to the Empire Marketing Board and also partly from the *Journal of the New Zealand Department of Agriculture.* They are given here for comparative purposes so that workers in Holland, Denmark and Great Britain may gain an idea of the nature of the food which the affected animals eat.

Table I (page 357) shows analyses from Waikato, Taranaki, Wairarapa and Central Otago. Central Otago is appended as an example of an inland mountain-locked district moderately rich in pasture and devoted to sheep and, because of its position, deficient in sodium chloride.

It will be seen that in 1929 there was a tendency for a higher phosphate and a lower lime content of pasture in the Waikato as compared with Taranaki, but several points must be taken into consideration:—

(1) That the grass tetany season was about over in the Waikato when samples were taken, and

(2) That it was nearly a month later that the Taranaki samples were taken.

(3) In the Wairarapa, on the one affected farm, the sample was taken during the grass tetany season.

In 1931 the samples were taken while the trouble was at its height and there was, in that year, a decidedly higher ratio of phosphate to lime. This result suggests use of the best strains of perennial rye grass.

It is interesting at this stage to note that grass tetany occurs mainly in those districts which use a good type of rye grass—Waikato, parts of Wairarapa, Manawatu, Poverty Bay, Bay of Plenty and Hawkes Bay. Taranaki has as yet not generally used the best rye grass for its permanent pastures, while the practice in the South Island, although fairly good strains of rye grass are used in many places, is to crop and not to keep permanent pastures for the stock.

Another comparative feature is the lower nitrogen figure for Taranaki in contrast with the

Table I: Pasture Analyses.

District.	*Spring. Sept. Oct.*	*Ash.*	*Sol. Ash.*	*Silica.*	*Fe.*	Al_2O_3	P_2O_5	CaO	MgO	Mn.	*Chlorine.*	I_2	Na_2O	K_2O	*N.S.*	
Unaffected: Waikato Sept., 1929	7 pastures no eclampsia	9·94	7·60	2·05	·028	—	·84	·90	·39	·022	1·16	45·5	·37	3·51	4·5	Taken during end of eclampsia season.
Taranaki Oct., 1929	59 of Ca., P_2O_5, N. 6 of others	9·4	7·07	—	—	—	·74	·96	—	—	—	—	·69	2·69	3·61	Taken for purposes of sterility investigation and involves good and fair pastures.
Wairarapa 1929	16 mixed	10 0	—	1·92	·034	·134	·92	·76	·46	·023	1·03	—	·32	3·45	4·24	Taken for various purposes from wide district which differs in patches in every few miles.
Waikato Sept., 1931	3 farms	—	—	—	—	—	1·11	·74	—	—	—	—	—	—	5·4	Taken during eclampsia season.
Affected: Wairarapa Oct., 1929	1 affected farm	12·2	—	1·99	·043	·117	1·09	·60	·50	·014	1·41	—	—	4·52	5·24	Affected farm in Wairarapa on rich plains away from hills.
Waikato Sept., 1929	9 affected farms	10·33	8·25	2·31	·028	—	·87	·91	·39	·019	1·02	34·25	·29	3·76	4·47	—
Waikato Sept., 1931	20 affected farms	—	—	—	—	—	1·224	·678	—	—	—	—	—	—	5·04	—
Central Otago Oct., 1929	22 farms pulpy kidney in lambs	10·1	5·97	—	·0226	·072	·68	·88	·44	·022	·56	53	·165	2·43	2·74	Taken for pulpy-kidney investigation, sheep pastures, but considered extremely rich for milk production in ewes.

* All results except iodine expressed as per cent. of matter dried at 100° C. Iodine as gammas/100 grms. dry matter.

excessively high figure for the Waikato. This high protein figure, however, may be one factor in the cause of grass staggers, but this is offset by Sjollema's own experiments with protein feeding and by experiments carried out at Wallaceville Laboratory. Also, high protein feeding to rats (80 per cent.) does not produce tetany in the adult rat (Cunningham).

Taking details of the rest of the analytical figures for pastures other than Ca, P_2O_5 and N into consideration, it will be seen there is a wide variation in the Na and Cl. This is most probably due to the position in which the areas under review are situated. Central Otago is far inland, Waikato and parts of the Wairarapa are some miles inland and salt-bearing winds do not pass over them to the same extent as in Taranaki, which is a coastal settlement and is well swept by salt-bearing winds. Although Cl is not given for Taranaki, yet the Na_2O is seen to be high and doubtless the Cl is also high. Again, none of the Na/K ratios are as high in New Zealand as in Dutch pastures. This fact would rather show that one need not take into consideration the low NaCl or the Na/K ratio when studying grass tetany. It will be remembered that farmers in the Waikato frequently use salt in hay and ensilage, and also employ salt licks.

Because there is always a sufficiency of green food, magnesium itself is always adequate in the diet. No deficiency could reasonably be expected in vitamins, and as Dutch cattle are stall fed and presumably are fed highly on a vitamin rich diet, one would be inclined by comparison to disregard vitamin deficiency as a factor.

Pasture analyses are as yet too crude to get the finer results as a matter of routine. Therefore the oxalates, nitrates, hydrocyanic acid and

amino acids, etc., which may be present in growing grass tips, can only be thought of as possibilities. Nitrate has been considered by Sjollema and certainly nitrates are high in Waikato grasses—according to Cunningham, who analysed samples from them—but also Taranaki and other fast-growing pastures contained as much. The most likely lead from pasture analyses so far obtained is the possibility of the high phosphate and low calcium with perhaps the high protein of an easily assimilable nature as a secondary influence. Feeding experiments bearing on these points will be detailed later.

Blood analyses from cows affected and from cows in a similar state as regards parturition but unaffected with grass tetany have been performed by Mr. S. W. Josland, Biochemist at the Wallaceville Laboratory. Samples were obtained by Blake and Marshall, who are investigating the problem in the field in the Waikato.

Results are given in Table II.

Table II: Blood Analyses, 1931–32.
Waikato Cases.

	Ca.	*P.*	*Mg.*	*Sugar.*	*K.*	CO_2 (*Plasma*).	*TNPN*	*Chol.*	NaCl.	
1932. Typical cases 18 cows	6·8 4·5–9·6	3·7 1·8–6·5	·83 ·39–1·2	·069 ·035–·105		38·4 25·5–53·6	33 20–54	99 62–133	440 390–500	
1931. Typical cases 17 cows	7·2 5·2–9·0	4·4 2·0–9·1	·79 ·3–1·5	·065 ·030–·126	21·5 16·4–27.4	— —	33·6 24–46	— —	— —	
1932. Non-typical cases. 12 cows	7·8 3·8–9·6	3·1 1·0–5·5	1·4 ·56–2·0	— —	— —	40 25·5–49·7	35 25–56	90 70–107	430 280–460	Mainly suggestive of milk fever, but not responding to treatment and not always showing low Ca. with high Mg. Therefore, not typical.
1931. Indefinite 6 cases	8·7 6·9–9·7	5·05 4·2–7·0	1·43 ·4–1·8	·061 ·060–·063	24·6 23·2–27·4	— —	39·5 35·44	— —	— —	Probably mainly digestive or uterine disturbance.
				Control Analyses, 1932.						
Affected farm 9 cows	9·2 8–9·85	4·7 3·4–5·7	1·3 ·72–1·7	— —	— —	— —	33 30–44	112 70–160	450 430–500	Taken mainly toward end of mortality rate.
Unaffected farm 8 cows	9·6 8·1–10·1	3·27 3·5–4·7	1·7 ·8–2·5	— —	— —	— —	29 26–45	117 84–145	— —	Ditto.

K, Ca, P, Mg., expressed in mgms. per 100 c.c. serum.
NaCl, T.N.P.N., and cholesterol, in mgms. per 100 c.c. blood.

It will be noted that the 1931 phosphate figures for blood are higher than the 1932 series and this is due to the fact that the analyses in 1931 were performed on serum, which frequently showed some colour due to hæmolysed red corpuscles, whilst the 1932 analyses were performed on oxalated samples, a number of which were semi-prepared for analysis by addition of trichloracetic acid before leaving the district of origin. Also, in 1931, the technique for magnesium estimation was altered and a higher value obtained in the latter few analyses. This slightly higher value is reflected in the 1932 figures for magnesium.

The second half of the table is devoted to control animals which did not become affected with grass tetany or milk fever but which grazed on farms in the district either known to be unaffected up to the present time or since licks were adopted a few years previously.

From the blood analyses as they stand it would appear that the figures of importance are those of calcium, phosphorus and magnesium. The remainder appear to be of little significance. It would seem that with a slight rise of phosphorus in the blood there is a tendency to a decrease in calcium and magnesium. This is only to be seen in striking an average figure and not in every individual case. This might be expected in view of the diverse times and conditions under which blood is taken for analysis in the field, a factor which is difficult to eliminate.

The most striking of all the results are those from unaffected cattle on affected farms taken at a time when grass tetany occurred on the farm. In those cases the calcium is frequently quite sub-normal and the magnesium very much so. This low degree of magnesium was much less noticeable in the unaffected

farms and generally the calcium was of a normal range in post-parturient stock.

In addition to blood analyses a few incomplete urine analyses were performed in 1931, but they are not very dependable and show little beyond the fact that urine usually contains some protein. A number of samples of bowel contents (duodenum to ileum) and spinal fluid were also tried for toxicity on mice and bacteriologically by Mr. D. A. Gill, M.R.C.V.S., D.V.S.M., Assistant Officer in Charge of the Wallaceville Laboratory, in an endeavour to find some toxin-producing organism which might be looked upon as a secondary cause for the sudden seizures of the cattle. Nothing at all significant, however, has been found up to the present.

Material received for section has shown very little gross change and beyond degeneration of muscle fibres—evidenced by poor staining of tissue and absence of striation, particularly in heart muscle—the kidney, with its slight tubular degeneration accompanied usually with slight glomerular damage, appears to be all that is abnormal.

Analyses of thyroid glands for iodine have yielded nothing abnormal unless it be that the iodine content is inclined to be a high average percentage in 14 cases—fresh gland, 0·115 per cent.; dry gland, 0·446 per cent.

EXPERIMENTAL WORK

(*a*) Trial of material in the field. Messrs. Blake and Marshall have tried treatment with the following materials:—

(*a*) Calcium.
(*b*) Calcium and magnesium. (Sjollema method and other trials previously.)
(*c*) Formalin.
(*d*) Liver stimulants.
(*e*) Chloral hydrate or morphia.
(*f*) Adrenalin.
(*g*) Udder inflation.

The only useful line of treatment has been to give chloral hydrate by the most suitable channel, usually *per rectum*, so as not to disturb the cow more than necessary and to give her by this means the required nerve rest while the body is adjusting itself to the altered mineral ratios or the absorbed toxins, whichever is responsible. Those misguided farmers who *drench* affected cows in the acute stage with medicines have lost more cases than the method warranted.

Treatment with calcium or calcium and magnesium has given no useful results in many cases tried.

(*b*) Several small experiments were carried out on cattle and sheep at Wallaceville on lines which it was thought might have a bearing on the disease. It was desired to find some combination of essentials in diet which would definitely reduce the calcium and magnesium in the blood of the grazing animal. At this time rats were not available, but this work is now being continued by Dr. Cunningham with rats at Wallaceville.

Experiment I.—Two cows, one calved 24 days and the other calved 20 days, were chosen in the early spring, taken entirely off hay and placed on a quickly growing, rich pasture. The analysis of this pasture is as follows:—

CaO.	P_2O_5.	N.
1·14	0·79	2·66

One cow received ½ lb. of casein in water as a drench daily and the other received an ounce disodium hydrogen phosphate and an ounce of sodium dihydrogen phosphate in water daily. Finally, as results were not being obtained as anticipated, three doses of three ounces each were given to each cow on the 16th-17th, the last dose an hour before bleeding took place. The casein cow developed a craving for salt and took to licking other cows when she was purposely deprived of rock salt.

Details in Table III (overleaf).

The most noticeable feature was the apparent digestive disturbance in the cows at the time of reduction of magnesium in the blood. It was unfortunate that phosphate analyses were not performed on every occasion, but the work involved at the time made this difficult; the single observation would suggest, however, that phosphate was lowered in the cow getting increased phosphate.

Experiment II.—The result of this last experiment suggested that a similar trial should be made on sheep, as they were less expensive and more easily bled. In addition, one sheep was given potassium nitrate and another sodium oxalate in the belief that the young, quick-growing pastures probably contained a quantity of both those materials.

Results were negative with the sheep. Sheep drenched twice daily and bled after second drench.

All these sheep had been on grass only, with no hay or roots all winter and consequently, except for their drenching, were not on a changed diet. The negative result therefore shows that their bodies could deal with the increased salts and foods imposed and that the body was well accustomed to deal with the type of food given.

Experiment III.—This experiment is suggested as a result of the first two, to show that animals placed on fresh, young, growing grass lose their mineral balance temporarily. It does not give the reason for this, but taken in conjunction with figures for blood from unaffected cattle on affected farms, with the figures in Experiment I, and from the fact that ruminants going freshly on to young grass tend to go temporarily off their feed after a few days and may even, in the case of sheep, show milk fever symptoms (Leslie), the figures would seem significant.

XUM

Table III: Blood Analyses.

		31/8	5/9	7/9	9/9	14/9	15/9	17/9
Casein	Ca	10·4	9·7	10·0	9·2	10·4	10·6	10·25
	P_2O_5...	—	—	4·2	4·1	—	—	—
	Mg.	1·9	1·6	1·9	1·3	2·0	2·0	2·1
	T.N.P.N.	36 (Serum)	35	34	35	—	—	—
	Cholesterol ...	—	90	—	—	—	—	—
Phosphate.	Ca	10·05	9·5	9·8	9·6	10·2	10·15	9·9
	P_2O_5	—	—	4·3	2·0	—	—	—
	Mg.	2·0	1·6	1·2	1·9	2·1	1·9	1·9
	T.N.P.N. ...	40 (Serum)	24	25	25	—	—	—
	Cholesterol ...	—	76	—	—	—	—	—
		Prior to feeding.						

On 6th, cow "phosphate" doing down in milk supply, moving stiffly, and not eating.

On 7th, cow "phosphate" in similar condition. Blood took long time to clot.

On 8th, cow "phosphate" not dosed on this date, but improving and eating a little grass.

On 6th, cow "casein" off colour and given only ½ dose of casein.

On 14th, both cows given three doses of material, casein—1½ lbs., phosphate 3 ozs. Bled one hour after feeding.

On 15th, phosphate cow again off feed in morning and showing stiffness, feeding in afternoon. Phosphate analysis overlooked.

On 16th, one dose of potassium nitrate in customary drench to each cow.

On 17th, potassium nitrate only, given twice and later cows bled.

Table IV (*a*): Blood Analyses.

			15/9	20/9	24/9	27/9
Sheep 282.	Ca ...	½ oz. aa Na_2HPO_4	10·3	9·95	10·0	—
	Mg. ...	Na H_2PO_4	1·6	1·87	1·7	—
Sheep 297.	Ca. ...	KNO_3 ½ oz.	11·0	10·9	10·0	11·3
	Mg. ...		2·0	2·2	1·9	2·4
Sheep 298.	Ca. ...	Casein 3 oz.	9·5	10·2	10·6	—
	Mg. ...		2·3	2·2	2·2	—
Oxalate sheep.	Ca. ...	1 gram. Na oxalate	10·0	10·1	9·2	10·2
	Mg. ...		1·9	1·9	1·9	2·5

Table IV (*b*): Blood Analyses.

		30/9	4/10	7/10	12/10	16/10	
Ca.	289 ...	9·6	8·6	8·3	9·6	9·6	
	291 ...	9·8	8·9	9·2	10·3	9·8	Lame throughout, probably hurt in cage.
	293 ...	10·2	10·1	10·0	10·8	10·4	
P_2O_5.	289 ...	4·3	5·3	4·5	4·5	4·0	
	291 ...	4·2	5·0	4·6	4·1	3·5	
	293 ...	3·3	4·2	4·2	5·0	4·1	
Mg.	289 ...	2·3	1·7	2·0	1·9		
	291 ...	2·3	1·8	1·9	2·0		
	293 ...	2·5	1·9	2·0	2·1		

The hoggets employed had been on phosphate-low diet for purposes of another experiment and had subsisted on dry feed for some months. They were turned on to grass only on September 30th.

The interesting points are the tendency to reduction in calcium and magnesium and the increase in phosphate, all of which are temporary until the balance is once more restored. These sheep went down in weight during this experiment but actual figures were not obtained.

ETIOLOGY

The position as regards grass tetany at the present time is that some factor is at work causing a depletion of blood magnesium and to

some extent calcium. There would seem to be one main possibility to be explored before much else is attempted, and that is the rôle of phosphate in this depletion. In the field it would appear clinically that post-partum paralysis is at one end of the scale and grass staggers at the other, with milk fever occupying a middle position, the three conditions occurring on the farm in the one season.

From the result of pasture analyses, more particularly those analyses conducted on pasture obtained at the height of the grass tetany season, there is a suggestion that the lower lime and higher phosphate does interfere with the blood calcium and magnesium. Experiments quoted, together with analyses of blood of animals unaffected but yet running on affected farms, would suggest that a further factor is required to cause the final nervous symptoms, and that a low blood magnesium may be present without symptoms. Is this second factor a toxic principle absorbed from the gut, and if such toxic principle exists, is it bacterial or is it of plant origin? Toxin trials with mice and bacteriological work suggest that if toxic it is non-specific. In looking over the position of rye grass in the country, it is an interesting fact that perennial rye of the best type is grown abundantly in all those districts where grass tetany exists but not in those districts where the disease is absent. Research, therefore, must take into consideration the type of soil upon which rye grass is grown and the analysis of such rye grass to ascertain whether in certain districts it becomes dangerously prone to high phosphate and low calcium. On the other hand, as one member of the rye family (Darnel) is said to be poisonous, is it possible that the better types contain some toxic element? Actually this would not seem very feasible, but it must be considered.

The whole position at the present time in New Zealand is that until the effect of the high phosphorus, low calcium balance of pastures on the blood phosphorus, calcium and magnesium is worked out, as it will be on rats primarily, other investigations must lag.

This paper has been written so that observers in other countries confronted with this disease may benefit by comparison of their local conditions with those in New Zealand. It has not been written to record a definite reason for grass tetany and allied conditions.

Summary

(1) Field observations and symptoms have been given.

(2) Analyses of pasture from affected and unaffected districts have been tabulated to show the general food of dairy cows in New Zealand.

(3) Blood analyses from affected and unaffected animals have been tabulated, showing the lowered calcium and magnesium and slightly higher phosphates in affected animals.

(4) Experimental work with minerals, protein and salts has shown all supplementary materials to be negative in provoking the disease, but that the placing of animals on a suitable grass diet tends to lower the blood magnesium.

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PROGRESS OF THE U.S.A. "ACCREDITED AREA" PLAN

On March 1st the state of Nevada was officially designated by the U.S. Department of Agriculture as a modified accredited area, signifying the practical eradication of bovine tuberculosis from all counties in the State. Elko and Eureka counties were the final ones to eradicate the disease. This is the ninth State to be placed on the honour roll by the U.S. Department of Agriculture. The other States that have been so designated are Maine, North Carolina, Michigan, Indiana, Wisconsin, Ohio, Idaho and North Dakota.

Clinical and Case Reports

PERIOSTEAL SARCOMA OF THE DOG

THOS. ANDERSON, M.R.C.V.S.
Forfar

I enclose herewith X-ray film which may perhaps be of interest to your readers.

Subject.—Wolfhound dog, aged eight years.

History.—The owner was of the opinion that the dog was suffering from a "splint," and various counter-irritants and absorbent ointments had been applied, but the enlargement, which was in the region surrounding the lower end of the ulna, was getting larger. The owner stated that the enlargement had been in existence for about a month prior to my seeing it. There was an acute lameness, but apparently little or no pain on manipulation.

I ordered the leg to be thoroughly cleansed of the dressings and had plasma dressings applied for a week. When I visited again, the enlargement was slightly more diffuse and decidedly harder.

I informed the owner I was not satisfied, and advised X-ray examination, the result of which is demonstrated in the enclosed film.

The owner not wishing to consider amputation, the dog was subsequently destroyed.

I am indebted to Dr. Geo. Grant, of Dundee, for the photograph.

* * * * *

RETINITIS IN THE DOG

K. J. S. DOWLAND, M.R.C.V.S.
Lincoln

Subject.—Airedale dog, six years old.

History.—Is losing his sight, particularly in dim light.

Examination.—Healthy, well-nourished dog. Appears to see fairly well in daylight; in semi-darkened room has distinct diminution of vision, walking into unexpected obstacles.

The eyes are apparently normal, except that the light reflected from the tapetum lucidum seems pale and greenish. This can be observed when the dog is manœuvred into a beam of moderate daylight in an otherwise darkened room.

Ophthalmoscopic examination reveals a pallor of the retina, around the disc, with a distinct diminution of vividness of pigmentation of the tapetum lucidum. Around this area, possibly only by contrast, the pigmentation seems more vivid than normal. The vessels seem very prominent in the disc, and around the affected area, while in the affected area they are slightly indistinct.

Urine, tested for sugar and albumen, negative.

There is no history of a head injury. I am rather inclined to suspect a nephritis in this case, in spite of inability to find albumen in the urine, although retinitis is supposed to be a fairly late complication of this disease.

A possible cause in this case may be staring into the fire.

I am inclined to think that diseases of the fundus are more common than is usually suspected in animals, and I would like to hear details of any similar cases that have been met with.

Treatment.—I am treating this case with Donovan's solution, and a low protein diet. There seems to be some slight improvement. I should say prognosis is definitely bad, however.

* * * * *

ABNORMAL EYELIDS OF KITTEN

K. J. S. DOWLAND, M.R.C.V.S.
Lincoln

Subject.—Kitten, about four months old.

History.—Kitten had always suffered from "weak eyes," since it had come into my client's possession.

Examination.—This revealed that the animal was suffering from severe purulent conjunctivitis of both eyes, with considerable corneal opacity.

In each eye, both eyelids, and particularly the upper, were too short by about one-third, the external extremities of the tarsal cartilages, that should have met, being over the middle of the outer third of the horizontal meridian. From each of these points, skin, lined with conjunctiva, grew down to near where the external canthus should normally have been. On this location, the fur-bearing skin of the face grew right on to the sclera, almost up to the margin of the cornea.

Above and below, this fur-bearing skin was continuous with the conjunctiva, the junction being quite apparent. The conjunctival sac, which in the cat is well marked in the region of the outer canthus, was in this case entirely absent—the skin of the face just grew on to the eyeball.

Prognosis.—Destruction was urged. However, the owner very strongly desiring treatment, a plastic operation was decided upon.

Operation.—The flap of fur-bearing skin was first dissected off the eyeball, and carefully separated from the adjacent conjunctiva. It was then split horizontally.

The two ends of conjunctiva thus formed were drawn towards the external canthus, and then sutured together (one suture). It was realised that this was a clumsy expedient, but it was

PERIOSTEAL SARCOMA OF THE DOG.
(Illustrating Mr. Thos. Anderson's Case.)

felt that nothing else could achieve the desired result, and that so much irritation already existed in the conjunctiva that the effects of a little more would be unnoticeable. The upper lid, which was turned inwards, was then strongly everted by Hotry's method.

To minimise ill-effects of the suture within the outer canthus of the eye, the eye was kept well filled with ung. hydrarg. oxid. flav. for the four days during which the suture was in position.

Much to my surprise, the separated ends of conjunctiva healed together, forming quite a well-marked little reflection under the external canthus, while the skin which had been reflected back off the eyeball joined up to the edges of the true eyelid, and to the free edges of the conjunctiva which had been drawn together by the suture.

The conjunctivitis has entirely disappeared, and the corneal opacity has cleared up nicely.

The kitten has a most peculiar appearance, as only about two-thirds of the eyelids bear cilia, while the ends of the tarsal cartilages are very apparent, giving the lid a sort of triangular appearance, with a pigmented knob at its apex.

However, the lids function well, and I see no reason to expect, at this time after operation, any complications.

Chloroform, in an open mesh, was used as anæsthetic. I find it very good for cats.

Abstracts

[An Attempt at Serotherapy in Contagious Agalactia. Véloppé. *Rév. Gén. Méd. Vét.* No. 482, 65.]

The causal agent of contagious agalactia of the sheep and goat has been described by Bridré and Donatien (1925) as an organism which closely resembles that of contagious bovine pleuro-pneumonia. These investigators have prepared an immune serum against this organism and the author considers that an account of his experience with this serum in the treatment of the disease would be interesting, although stovarsol has since been found to be a specific therapeutic substance.

Contagious agalactia occurs in France, Switzerland, North Africa and Indo-China; it is characterised by mastitis, arthritis and keratitis accompanied sometimes by abortion, paresis and general debility. The onset of mastitis is made manifest by a sudden cessation of lactation.

The author describes an outbreak of the disease in a flock of goats. He selected 11 affected animals which had been unsuccessfully treated with medicinal agents. Six of these goats were treated with serum and the other five left untreated. The results were as follows: of the six serum-treated goats, three recovered, two died and one had to be killed; of the five untreated animals, two died and three recovered.

The author points out that although serotherapy in this outbreak did not appear to be of value, the amount of serum available was too small and the animals available for testing too few in number. From a study of the individual cases, he concludes that serum was efficacious when administered in the early stages of the disease. He has had no experience of the prophylactic value of immune serum.

C. McG.

* * * * *

[Experimental Immunisation against Tristeza (Piroplasmosis and Anaplasmosis) of Cattle of Brazil. Omlin, A. *Schweiz. Archiv. f. Tierhlk.* 1932. Vol. 74, No. 12.]

The object of the work reported on was to improve the method of immunising European cattle, intended for export to South America, against piroplasmosis and anaplasmosis. Hitherto, the only way to do this was to inoculate the fresh animals with some blood taken from a recovered carrier and the severity of the reaction could not be foretold. The author obtained two beasts from Natal carrying *Piroplasma bigeminum* and *Anaplasma centrale* in their blood, one strain of *Anaplasma marginale* from Brazil and two strains of *A. marginale* from England, and performed a number of experiments on Swiss cattle. He found that piroplasmosis cattle could be immunised against piroplasmosis by inoculating them with infected blood from a carrier and then controlling the subsequent reaction by intravenous injections of piroblue, and that immunisation against the otherwise very virulent *Anaplasma marginale* infection could be achieved by a preliminary inoculation of blood containing the relatively non-virulent *A. centrale.*

This procedure is recommended for more extended use.

J. E.

* * * * *

[On a Vegetable Substance with an Action like that of Folliculin. Frei, W. and Bisig, J. *Schweiz. Archiv. f. Tierhlk.* 1932. Vol. 74, No. 12.]

The authors have for some time been experimenting with an unspecified plant extract with regard to its pharmacological properties, and have found that it has a distinct and specific action on the non-gravid uterus of the guinea-pig both *in vitro* and *in vivo.* It causes both a proliferation and glandular activity of the uterine endometrium and stimulates the muscular coat of the organ.

This is a preliminary note and the work is proceeding.

J. E.

Review

[**Antony van Leeuwenhoek and his "Little Animals."** Dobell, C., F.R.S., Protistologist to the Medical Research Council, London. (1932). pp. 435. 32 plates. 458 refs. London: John Bale, Sons and Danielsson, Ltd. 31s. 6d.]

Leeuwenhoek, of all true naturalists, occupies the curious position of being the most frequently misquoted and misunderstood and it is perhaps true to say that not until the appearance of Mr. Dobell's treatise (published on the three hundredth anniversary of Leeuwenhoek's death) has it been possible to form a correct opinion of this great man's work.

Leeuwenhoek had no learning and knew no science; he was just an ordinary shopkeeper holding a few minor municipal appointments in the little old town of Delft, but in spite of these obvious drawbacks he became a famous scientist and a Fellow of the Royal Society of England.

The work under review comprises some 435 pages and is lavishly illustrated. It is an intimate description of the "Father of Protozoology and Bacteriology and his multifarious discoveries and disciplines." We are told in an informative preface—or as the author describes it, an "Epistle to the Reader," written in delightful style, the refreshing rarity of which compels attention—that it is some twenty-five years since he commenced his labours in which the main object was to find out "who this person really was and what precisely he had discovered." Mr. Dobell's careful researches and his mastery of old Dutch have resulted in a work the value of which is of the highest order. The thoroughness with which even the smallest details are dealt—footnotes appear on every page—is not the least arresting feature.

Himself a distinguished protozoologist, Mr. Dobell has been able to analyse and interpret the many discoveries which Leeuwenhoek, working with the most primitive of apparatus—all made with his own hands—was the first to devise. The reader is asked to "meet Mr. Antony van Leeuwenhoek (a simple and ordinary dead Dutchman) and shake him by the hand and hearken to what he has to say." Complete translations are therefore given of Leeuwenhoek's letters (some of which are published for the first time) to various scientific bodies and not merely summaries which might conceivably convey impressions quite opposite to those intended.

Within the confines of four chapters we have an account of Leeuwenhoek's life, his language, his microscopes, his house, and so forth—indeed a thoroughly complete life history, containing no single page without at least one, and in most cases many, explanatory notes giving the reasons for the author's interpretations of the difficult wording of many of Leeuwenhoek's letters, as well as references for the sceptic should he desire confirmation.

An adequate review of this magnificent work is not possible within the limits of permissible space, and in any case should have been carried out by a protozoologist, but anyone reading it from cover to cover will be in complete accord with the author when he says that by a careful study of Leeuwenhoek's life and work one learns "the true meaning of the much misused term 'scientific research.'" This result of the author's twenty-five years of painstaking and thorough work earns our admiration and gratitude. All those interested in the history of science—a section of the public becoming larger every day—will welcome this most valuable addition to our knowledge.

The publishers would appear to have been imbued with the same spirit of enthusiasm which stimulated the author, for the printing and binding, as well as the reproduction of the many illustrations and plates, leave little to be desired.

ENCOURAGEMENT FOR THE FARMER

"A word of praise is always encouraging, and the observations of the Chief Veterinary Officer for the West Riding, who reports a marked improvement in the cleanliness of cattle on numerous farms in North Ribblesdale, will be nowhere more welcome than to the great majority of farmers in this important and extensive grazing area," says the *Craven Herald*. "Since the passing of the Milk and Dairies Order, farmers have had a very harassing time, and in various parts of Craven, medical officers of health and veterinary officers have often been compelled to report against them in terms far from kind. Everybody is agreed that the production of milk under the cleanest conditions is essential. Most farmers immediately carried out the Order to the best of their ability, but others, through circumstances over which they had no control, chiefly financial considerations, have been faced with many difficulties. Thus, it is to their credit that they have surmounted them so well, and the congratulatory note in the official reports that are quoted from time to time is all the more welcome and helpful."

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MILK GRADES NOMENCLATURE

The Scottish producers of Certified milk are not satisfied that the change in the name of grades suggested by the Milk Reorganisation Commission sufficiently distinguishes Certified milk from the second grade Tuberculin-Tested milk, and it is understood that the English producers of Certified milk also are concerned with the position. It is recognised that the existing nomenclature of official grades is confusing to the public as consumers, and to that extent the English Commission's suggestions meet with approval. But the Scottish producers of Certified milk, at a meeting, resolved that if the English Commission's suggested name of "Special Milk" be applied to both Certified and Grade A (T.T.) milk, they should press for Certified milk being called "Special No. 1 Milk" in order to retain its distinction.

N.V.M.A. Divisional Report

LANCASHIRE VETERINARY MEDICAL ASSOCIATION*

ANNUAL MEETING AT MANCHESTER
Mr. T. Wilson's Presidential Address

The Annual General Meeting of the Lancashire Veterinary Medical Association was held at the Grand Hotel, Aytoun Street, Manchester, on Wednesday, March 15th, 1933, at 3.30 p.m.

The chair was occupied by the President, John Spruell, Esq., other members present being Messrs. J. Adamson, junr., J. Holroyd, C. F. Shawcross, R. C. Locke, G. H. Locke, R. H. Oddy, J. H. Wright, H. Sumner, junr., E. H. Curbishley, A. J. Wright, T. Wilson, W. Woods, A. W. Noel Pillers, A. L. Mullen, J. H. White, W. G. Burndred, H. Davies and G. Mayall.

Apologies for unavoidable absence were received from Messrs. D. C. Webster, H. T. Matthews, G. O. Davies, H. S. Caldwell, R. Hughes, H. R. Hewetson, H. G. Hewetson, Warwick Fowle, H. Holroyd and Professor Gaiger.

The minutes of the last Annual Meeting, having been published in the *Veterinary Record*, were taken as read.

Correspondence.—(1) From Mr. R. Simpson, the Hon. Secretary of the Committee in connection with the Victoria Veterinary Benevolent Fund Golf Competition, drawing attention to the competition.

(2) From the General Secretary of the National Veterinary Medical Association, acknowledging receipt of a form drawn up by a Committee of the Division in connection with Lightning Stroke.

Hon. Treasurer's Report and Financial Statement.—Mr. Noel Pillers gave an account of the finances of the Association, and it was proposed by Mr. T. Wilson, seconded by Mr. G. Mayall, and carried unanimously, that the Financial Statement be approved and adopted.

HON. SECRETARY'S REPORT

The Hon. Secretary (Mr. A. R. Mullen) then presented his annual report, which was as follows:—

During the past year there have been four ordinary general meetings and a summer meeting. Three meetings were held in Manchester, one in Liverpool and the summer meeting in Newport, Shropshire.

The following addresses were presented:—

(1) "The Detection of the Source of Infection in Tuberculous Milk." H. L. Torrance, M.R.C.V.S., D.V.S.M. (Vict.), of Nottinghamshire.

(2) Demonstrations and Addresses by the Principal and members of the staff of the Harper Adams Agricultural College.

(3) "Convulsions in Cattle." J. R. Barker, M.R.C.V.S., D.V.H., of Hereford.

(4) A series of clinical subjects by members of the Lancashire Division.

(5) "*Post-mortem* Technique in the Equine Subject." H. Burrow, M.R.C.V.S., D.V.S.M., of Birkenhead.

The meetings were held in the months of May, July, October, December and January.

The average attendance at these meetings was 18, the largest being 26 at the May meeting in Manchester.

The papers and discussions were selected primarily for the reason that they were subjects of particular interest to veterinary practitioners and it is a matter for regret that the attendances were so poor.

The summer meeting is now being looked forward to as an annual event. Certain difficulties were attendant upon the organisation of the meeting in 1932, but the venture of holding it at an Agricultural College proved to be an unqualified success, as evidenced by the expressions of hope that the experiment would be repeated in future years.

Council Meetings.—Six Council meetings were held, four in Manchester and two in Liverpool. The average attendance was ten, which is in sharp contrast to the average attendance of 18 at the General Meetings.

Committees and Sub-Committees were appointed to deal with the following items of major importance:—

(*a*) *The Treatment of Sick Animals of the Poor.*—Members of the profession in Lancashire and Cheshire and members of the Division were circularised with the two schemes sent out from the N.V.M.A. for free treatment of sick animals of the poor. An effort was made to organise contact between veterinary practitioners and local branches of the R.S.P.C.A. in carrying out this work.

Sub-Committees were appointed to deal with the matter in Liverpool and Manchester.

(*b*) *Revision of the Rules.*—The necessity for revising the rules (last revised in 1920) was recognised and a Committee was set up to prepare a report for Council. This has now been completed and a draft submitted to Council for their consideration. It is hoped to complete this task soon and bring the new rules into operation in 1933.

(*c*) *Lightning Stroke.*—As a result of an address by Mr. J. W. Procter, of York, in 1931, a Committee was formed to draw up a *pro forma* scheme for dealing with suspected lightning cases. This form has been printed and circularised to members of the Division.

Election of Hon. Associate.—Lieut.-Colonel J. W. Brittlebank, C.M.G., M.R.C.V.S., D.V.S.M. (Vict.), was elected an Honorary Associate of the Division.

Election of New Members.—Mr. J. A. Foulston, M.R.C.V.S., Oldham, Lancs.; Mr. A. B. Kerr, M.R.C.V.S., D.V.S.M., Chester; Mr. J. Adamson, junr., M.R.C.V.S., Bolton; Mr. W. H. W. Baird, B.Sc., M.R.C.V.S., D.V.S.M., Hooton; Mr. R. Hopps, M.R.C.V.S., Liverpool.

Resignations.—Mr. J. Cochrane-Dyet, Mr. P. Manuel.

Deaths.—Mr. C. Wadsworth, M.R.C.V.S., Oldham, Lancs.; Mr. J. Lawson, M.R.C.V.S., St. Anne's-on-Sea, Lancs.; Mr. Stafford Jackson, M.R.C.V.S., Liverpool.

General.—The Secretary conducted voluminous correspondence in carrying out his duties. The affairs of the Lancashire Division are considerable and demand the wholehearted co-operation of members, and support and enthusiasm for its activities. The Secretary served on the Free

* Received for publication March 28th.

Treatment and Revision of the Rules Committees, and was appointed to the Organising Committee of the N.V.M.A. and Divisional Representative of the *Veterinary Record.*

It was proposed by Mr. J. Holroyd, seconded by Mr. R. C. Locke, and unanimously resolved that a vote of thanks be tendered to the Hon. Secretary.

Induction of the New President.—Mr. T. Wilson, m.r.c.v.s., Nantwich, was formally inducted to the chair by the retiring President, Mr. John Spruell.

Mr. Spruell referred to the poor attendances at the meetings during the past year and appealed to the members to make better efforts to attend the meetings in the future. He expressed the hope that Mr. Wilson would have good health, good fortune and a successful year of office.

Presidential Address

Mr. Wilson, in his Address from the Chair, said:—

I thank you very much for the honour you have conferred upon me by selecting me as your President for the ensuing year.

I do not claim any special merit for this honour, except perhaps to say that I am a general practitioner, and I know it has been the wish of many members, and especially of your energetic Treasurer, that the Presidential Chair this year should be occupied by a private practitioner, as it is very evident the attendances and interest taken in our Society by the general practitioners are on the decline. I therefore take office with the hope that it may be a stimulus to them to do their best to attend and so help to further our mutual interests.

It is the duty of the newly-elected President, under the old Rules of the Society—and I suppose I am elected under those—to inflict upon you an inaugural address, and as you may have gathered from my few remarks already, anything I have to say should be something in connection with general practice. I will therefore take the opportunity of unloading upon you my views on the outlook and prospects of the practitioner, and more especially the country practitioner.

One of the privileges allowed for the Presidential Address is that it is usually adopted without discussion and, if it is in order, I sincerely hope this procedure will not be followed and any remarks I make will be open to a free discussion, as the subject I am dealing with is of vital importance to the welfare of the profession, especially to the general practitioner, and also to the live-stock industry of the country.

At the present time many of us are very perturbed in our minds about the future prospects for country practice. We seem to be experiencing a transition stage from private practice to a whole-time Veterinary State Service.

The general practitioner has always been looked upon as the "backbone" of the profession, but I am afraid that unless something is done to encourage more members of the profession to take up general practice, this "backbone," already very much bent, will soon be "broken." This is not because there is less need for the general practitioner—as a matter of fact, I am confident there is more work than ever for us—but because the most lucrative part of our practices is being gradually taken from us and done by a whole-time Veterinary State Service, leaving us work and conditions to contend with which are by no means conducive to one to take up general practice. The result is that many practitioners are seeking employment in the State Veterinary Services, many practices have closed down, and there will be a tendency for more to do so unless some encouragement is given to the general practitioner to carry on his useful rôle.

This gradual depletion of the ranks of the general practitioner is a serious condition which will be to the detriment of our profession, and is bound to have an adverse effect on the stock-raising industry of the country, which relies so much on the skilled services of the practitioner. Why is this work being taken from the general practitioner? Several reasons are given and advocated by those chiefly concerned in the establishment of a Veterinary State Service, which I need not enter into; suffice it to stress the very detrimental effect it will have on the prospects of general practice.

The Milk Reorganisation Commission recommends the setting up of a whole-time Veterinary State Service for the efficient operation of the Milk and Dairies Order, the Tuberculosis Order, and the Milk (Special Designations) Order, when the supply of qualified veterinary surgeons is equal to it. If these recommendations are adopted I am certain the supply of veterinary surgeons necessary for it will be immediately forthcoming, because a very considerable amount of this work is being done by the general practitioners from whom it will be taken, with such serious consequences that there will not be sufficient inducement for them to remain in private practice and many will prefer to seek a whole-time State appointment.

In addition to this depletion of his work, the advice now given by Veterinary Advisory Officers in certain parts of the country is also reducing other sources of income which the general practitioner at one time enjoyed. I do not wish for a moment to convey the idea that I am opposed to the employment of a certain number of whole-time Veterinary Inspectors for this work. I consider that every county should have at least one County Veterinary Officer and in many cases a few whole-time assistants, but some of their work should and could be allocated to the private practitioner, who would work in

co-ordination with and under the control of the County Veterinary Officer. One is not surprised, therefore, that many of the younger graduates are seeking whole-time appointments. There is not sufficient inducement to take up general practice and the prospects for the future are far from encouraging, comparing the two positions from a financial point of view. What does this comparison reveal?

A country practitioner, working single-handed, on an average will not do more than about £1,500 worth of work in a year, and he will not be many years in practice before he has a year's earnings always on his books. If he has to buy a practice of this size at a cost of one year's turnover, he will be expected to pay £1,500 for it, and the most he can expect is a net profit (or income) of £500 for the year. This is putting it at a high average and over, rather than under, estimating the amount he will get in country practice. In short, he has £3,000 worth of capital at stake; he has to do £1,500 worth of work a year, for which he receives a net profit of about £500. On the other hand, the whole-time State-paid Veterinary Inspector has practically no capital at stake, he does £500 worth of work for which he receives £500—his travelling and other expenses are usually well provided for. It is not surprising, therefore, that the ranks of the general practitioners are becoming depleted, and unless something is done to encourage his work, this decline will continue, quackery and proprietary medicine vendors will flourish, and it will be very much to the detriment of all concerned.

What can be done to prevent this state of affairs? In other words, what can be done to encourage members to take up private practice when it is so apparent to us that the "cream" of our practices is being taken from us and we are left with the "skim milk"?

The obvious answer to this is to provide the general practitioner with work of a remunerative nature, work which he knows will be paid for within a reasonable time and so enable him to carry on the less remunerative duties he is called upon to perform.

The question of fees charged by general practitioners is one which I should like to see tackled this session, as I am certain that if some uniform standard of charges for our services could be arrived at, it would be a step in the right direction for the encouragement of general practice.

In conclusion, I appeal to all, especially to the general practitioner, to try to attend the meetings of our Society, where our interests can be watched and discussed for our mutual benefit.

I know the difficulties under which many of you work, and how very difficult and inconvenient it is sometimes to attend the meetings, but as most of you are aware, the present times are exceptional ones for the general practitioner, and it is more imperative than ever before that we should attend.

Gentlemen, I again thank you for the honour conferred on me by electing me President of our Society, also for the privilege of being allowed to air a grievance which is uppermost in the minds of many general practitioners at the present time, and which, I hope, you will discuss for our mutual welfare. (Applause.)

Mr. J. Spruell expressed his thanks to the President for his address and pointed out that, although it was not usual, Mr. Wilson desired the points he had raised to be discussed. No doubt many of the members present would be pleased to avail themselves of the opportunity to make observations on the subject.

Mr. G. Mayall was very pleased to hear Mr. Wilson's remarks concerning the milk question. He thought it was a very important question that was looming on the horizon at the present time, and the veterinary profession was concerned very intimately. There had been many loose and misleading statements made on the subject—one Member of the House of Commons having said that there were not enough veterinary surgeons to carry out the necessary inspections of cattle, etc. That statement was inaccurate, and the whole question was one that should be settled without delay.

The matter of fees was another aspect of the subject that should be settled also, and Mr. Mayall was of the opinion that the employment of part-time practitioners would be no more expensive than the employment of whole-time officers.

There were many points to be considered, and a great deal of the work required to be carried out tactfully and diplomatically. For instance, the work under the Milk and Dairies Act often required the improvement or alteration of premises, and landlords had to be met and tactfully persuaded to carry out the alterations or to help in their carrying out. Local veterinary surgeons were mostly acquainted with local conditions and, in many cases, could help to handle the position much more efficiently than a veterinary surgeon who was a stranger to the district.

Mr. Mayall was unable to understand the objection that had been made in the past to sanitary inspectors, as there was enough work for veterinary surgeons to do without having to attend to drains or supervise the internal planning and alterations in the cow-houses, which were solely the work of the sanitary inspector. A good feeling and understanding between the veterinary surgeon and sanitary inspector produced the best results under the Act.

He expressed the hope that the Lancashire Association would discuss the question fully, and take a strong step in the right direction.

Mr. J. Holroyd proposed that the whole subject

be adjourned for a full discussion at a future general meeting. It was a very big question, not so much from the aspect of the part-time practitioner *versus* the whole-time officer, but it affected the whole of the veterinary profession. He agreed with Mr. Wilson that if the schemes at present under consideration became operative many general practitioners would cease to exist as such, and this would be very serious for the farmer, who would at least be very much inconvenienced. If general practitioners became extinct, there would be an adverse affect on scheduled diseases, as they would not be held in check as much as at the present time, and there would be the additional danger of "quack" treatment of animals.

Major J. H. Wright seconded the proposal.

After further discussion, it was unanimously resolved that the Presidential Address be printed and circulated to each member of the Division for discussion at the next general meeting, that a special agenda emphasising the various points to be discussed be drawn up by the Hon. Secretary, and that the subsequent discussion on the subject be not published.

A vote of thanks to the retiring President, Mr. John Spruell, was proposed by Mr. E. H. Curbishley, seconded by Mr. G. Mayall, and carried unanimously.

Vote of Thanks.—Mr. J. Spruell proposed, Major J. H. Wright seconded, and it was unanimously resolved that a vote of thanks be tendered to the Hon. Treasurer, Hon. Secretary, and Council of the Division in respect of their work during the past year.

Interesting Specimen.—Mr. J. Adamson, junr., exhibited anterior dorsal vertebræ taken from a four-year-old thoroughbred chestnut mare. The animal had been cast in a horse box during transit and whilst an attempt was being made to extricate her, the animal struck her withers a violent blow against the top half of the door of the box. This occurred about 18 months ago and the mare was treated and sent here recently as a hunter. It was not possible to get a saddle to fit as the withers were quite flat. It would be seen that the second, third and fourth dorsal spines were completely fractured about three inches below their summit, and during the repair process had become folded upon themselves like a pocket knife. The fifth, sixth and seventh had been fractured but had still retained their original form during repair.

Several members entered into the discussion on this interesting specimen.

Mr. W. G. Burndred referred to the case of a valuable cow reacting to the tuberculin test, which had been mentioned at a previous meeting. The animal in question was one of a tested herd, and on being subjected to the tuberculin test gave a very definite positive reaction. The owner was not satisfied, and the test was repeated three days later by a second veterinary surgeon, when a negative reaction resulted. Mr. Burndred then insisted that the animal be rested for three weeks and tested again. This was done, and the third test gave a positive reaction again. Tuberculin from different sources was used on each of the three occasions, and he asked if other practitioners had had similar experiences and whether a possible explanation was that, contrary to the the usually expressed view, it was possible for a second test to be affected by a previous one unless an interval of some weeks elapsed between the two, as in the case of the subcutaneous test.

Mr. E. H. Curbishley referred to the honour conferred upon Mr. Noel Pillers on his being elected a member of the Royal Society of Edinburgh, and to the recent Shire Horse Show at which Mr. Pillers had had success on his first appointment since his succession to the post of Chief Veterinary Officer of Liverpool.

Mr. Curbishley proposed that the Division tender to Mr. Pillers their congratulations, and this was carried unanimously.

The question of the programme for the ensuing year was raised, and suggestions were invited. It was resolved that the whole matter be left in the hands of the Council.

A. R. Mullen, *Hon. Secretary.*

LADIES' VETERINARY BENEVOLENT GUILD

A meeting of the Council of the Guild was held on Wednesday, April 5th, at 2, Verulam Buildings, Gray's Inn, W.C.1.

Letters of apology for absence were received from the following: Mrs. Male, Mrs. Scott Dunn, Mrs. Conchie, Mrs. Brittlebank, Mrs. Rider, and Mrs. McGregor.

It was decided to appoint Sectional Secretaries for Scotland, Wales and Ireland, to whom the local Secretaries in their countries would be responsible. Ladies have been written to with regard to accepting these appointments.

A proposal was received that there should be an additional entertainment at the N.V.M.A. Congress in aid of the Fund. Something in the nature of a bridge drive was suggested. This matter is being dealt with.

Kitty Sheather, *Hon. General Secretary.*

The report for 1931-2 of the Department of Scientific and Industrial Research (3s. net) states: "Chilled beef can be kept in store for about one month, after which it deteriorates through the action of moulds. It has been found that comparatively low concentration of carbon dioxide inhibits the growth of moulds. Twenty per cent. of carbon dioxide will certainly prolong the storage life sufficiently to enable chilled beef to be brought from Australia to this country; but probably 10 per cent. would be sufficient. The investigation, however, is still only in the laboratory stage, and there are many difficult engineering and other problems to be solved before it is known whether it can be applied on the commercial scale."

In Parliament

In the House of Lords, on April 10th, the Pharmacy and Poisons Bill was read a second time, and committed to a Standing Committee.

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SLAUGHTER OF ANIMALS BILL

In the House of Commons on April 7th the second reading of the Slaughter of Animals Bill was moved by Colonel Moore, who said that there had been many investigations to find out if this was a just measure, and all those investigations had proved the promoters' case. Since the Bill was last before the House, public opinion had been growing and its supporters had become more and more convinced that they were right in their attitude. Twelve million animals were slaughtered every year under conditions which imposed a considerable amount of pain. If there were any points in the Bill which hon. members would like to be altered those points would be carefully considered by the promoters when the Bill went to Committee.

Major Procter moved the rejection of the Bill. He said the opponents of the measure were not less humane or less scientifically minded than those who supported it. If the word "mechanical" had been substituted for the word "humane," he was sure that a great deal of the sympathy which had been worked up on behalf of the Bill would not have occurred. To kill an animal mechanically did not necessarily imply that it was slaughtered with less cruelty than if the ordinary means now used were applied. It was necessary to examine very carefully whether the operation of this Bill would produce food of prime quality and enable this country to regain a great share in the bacon market of the world. This Bill was too wide in its scope. It included the slaughter of the smaller animals, such as pigs and sheep, and if Colonel Moore had listened to those who would have helped him and excluded these smaller animals he would have had an agreed measure, but the hon. member wanted the whole Bill and nothing but the Bill. This measure would raise the price of meat and decrease its quality. It compelled local authorities to see that its provisions were carried out, and that would mean more officials, more licences, and more control.

The second reading was agreed to, amid cheers, without a division.

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Prior to the Easter Recess, the following questions and answers were recorded in the House of Commons:—

British Army (School of Equitation)

Brigadier-General Nation asked the Financial Secretary to the War Office whether, in view of the advance of mechanisation and of the fact that approximately ten officers, five warrant officers, 18 sergeants, 32 other ranks, and 89 civilians (whose salaries alone amount to about £20,000 per annum, apart from maintenance charges), together with 157 horses, are required for the instruction of a class of only 14 officers and 24 non-commissioned officers at the School of Equitation at Weedon, he will, in the interests of economy, consider the immediate closing down of that establishment and the disposal of the property?

Mr. Cooper: The present establishment is not larger than is required for training the instructors required in the cavalry and artillery to teach equitation in the mounted services and to supervise the breaking and training of the remounts of the Army. The question of reductions in the cost of the school is constantly under review in the light of the increase of mechanisation. I would point out that 15 non-commissioned officers borne on the establishment of the school are detached for duty at the Royal Military College and the Riding Establishment, Woolwich.

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Dogs (Experiments)

Sir R. Gower asked the Home Secretary whether his attention has been called to the fact that a Select Committee of this House has recognised 276,594 signatures to the petition recently presented praying that experiments on dogs should be prohibited; whether it is his intention to introduce legislation to give effect to the prayer; and whether he has any statement to make on the subject matter of the prayer?

Sir J. Gilmour: A copy of the petition from the Canine Defence League, which I am informed had 276,594 signatures appended, has been forwarded to the Home Office by the Select Committee on Public Petitions. In this, as in all other matters, the Government must be guided by considerations of the general interest, and having regard to the reasoned opinion expressed in the memorandum of the Medical Research Council presented to Parliament in 1927, and to the valuable results in the prevention and treatment of canine and human diseases which have been achieved by means of experiments on dogs, I am not prepared to introduce legislation on this subject.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

April 24th.—N.V.M.A. Committee Meetings at 2, Verulam Buildings, Gray's Inn, W.C.1: Finance and General Purposes, 2 p.m.; Editorial, **3.30 p.m.**

April 25th.—Meeting of the Derbyshire Division, N.V.M.A., at Derby.

April 26th.—Meeting of the Comparative Medicine Section of the Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.

April 28th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds.

April 28th.—Meeting of the Royal Counties Division, N.V.M.A., at the Laboratory of the Ministry of Agriculture and Fisheries, New Haw, Weybridge.

May 5th.—Meeting of the Mid-West and South Wales Division, at Bath.

May 10th.—Last day for nominations for election to Council, R.C.V.S.

May 24th.—R.C.V.S. Voting Papers and Annual Reports issued.

May 31st.—R.C.V.S. Council Election: last date for receipt of Voting Papers.

June 7th.—R.C.V.S. Annual General Meeting, 12 noon.

June 7th.—Annual General Meeting of Victoria Veterinary Benevolent Fund.

June 8th.—D.V.S.M. Examination begins.

Sept. 18th-23rd.—N.V.M.A. Congress, Llandudno.

R.C.V.S. OBITUARY

Loughran, Thomas Edward, Mill Street, Monaghan, I.F.S. Graduated Edinburgh, May 18th, 1898; died February 27th, 1933.

In recording the death of Mr. Loughran, a Monaghan paper states that the news of his passing, following a brief illness, came as a great shock to the people of Monaghan, and that it would be received with feelings of deep sorrow throughout County Monaghan, and particularly amongst the farming community, with whom Mr. Loughran was ever popular and amongst whom he enjoyed a very high reputation for his professional skill.

The late Mr. Loughran was born at The Castle, Ballygawley, Co. Tyrone, being the son of Mr. and Mrs. Francis Loughran, a very old County Tyrone, family, who possessed extensive lands. Displaying a proclivity for the veterinary profession, Mr. Loughran entered the Veterinary College, Edinburgh, and where he qualified after a brilliant course. He practised for some years at Staines, near London, and came to Monaghan over 30 years ago.

"In Monaghan he soon made a name for himself, and farmers had the most implicit confidence in him" proceeds the local journal. While Mr. Loughran always manifested a keen interest in the welfare of his county, yet he took no part in public life. He was an intelligent, broadminded man, who respected the opinions of every section in the community.

"He had many intimate personal friends with whom it was his delight to spend many enjoyable social evenings in his home. He was an interesting conversationalist, and chatted freely on all subjects. He was a man of fine physique and early in life took a keen interest in all sport. He was a benefactor of the poor, but his acts of charity were performed in a quiet way.

"Mr. Loughran had no relatives in Monaghan. One of his three brothers, Mr. John Loughran, is also a noted veterinary surgeon in Aughnacloy. An attack of influenza prevented him from attending his brother's funeral, which took place amid manifestations of deep and widespread mourning, at St. Macarten's Cathedral. The cortege was of a very large and representative character, and afforded testimony of the high esteem in which deceased was held. Business was suspended and every mark of respect shown as the procession passed through the town. Requiem mass was celebrated by Rev. J. Finnegan, c.c. Interment took place in the new burial ground at Laturcan."

Resolutions of sympathy with the relatives of the deceased gentleman were passed at meetings of the Monaghan County Council (he had been an officer of the Council for over 20 years) and the Clogher Guardians, and at the Aughnacloy Petty Sessions.

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THE LATE SIR EDWARD STERN.

In the death of Sir Edward Stern, Bt., which occurred on Monday last, there has passed one who was a worthy champion of the horse and the interests of his fellow-members of the horse-owning community.

"It is probable," says *The Times*, "that Sir Edward Stern was the last prominent City man to go daily to his office in a horse-drawn carriage, and up to a few months ago he went to the City driving his own horses. Indeed, it is in connection with the worlds of coaching, hunting, and horse breeding that his name will be chiefly remembered by the public. He was a member of the Coaching Club, of which he was the oldest driving member, and the Four-in-Hand Club, and his famous blue roan hackneys were always conspicuous at the meets. His adoption of blue roans he described as a 'fluke,' and as due to the chance of finding some good horses of that colour when he started coaching.

"Sir Edward Stern did not take part in racing as an owner, but he was a keen rider to hounds in his earlier days. He also bred horses, both light and heavy. At the Royal Counties Show he had won first prize and the championship with his shire stallions, and he had won championships and many awards both with shire stallions and shire mares at numerous shows. Jersey cattle were bred by him at his Surrey seat, Fan Court, Chertsey, and also a few Hackneys and hunters."

The profession was particularly indebted to Sir Edward by reason of the fact that he gave the great sum of £10,000 to the Royal Veterinary College Re-building Fund.

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LONDON UNIVERSITY D.Sc. DEGREE IN VETERINARY SCIENCE

In the current issue of the *London University Gazette* (Minutes of the Senate of March 22nd), it is announced that, in accordance with the Reports of the Examiners, the following Internal Degrees were (amongst those) conferred:—

D.Sc. Degree in Veterinary Science on

(1) Sampson Charles Jenkin Bennett (*Royal Veterinary College*) for a thesis entitled "Contagious Bovine Pleuro-Pneumonia: Control by Culture Vaccines" (*Jl. Comp. Path. & Therap.*, 1932);

(2) Arthur Wallace Stableforth (*Royal Veterinary College*) for a published work on "Bovine Mastitis" (*Jl. Comp. Path & Therap.*, 1930 and 1932) and "Johne's Disease" (*M.R.C.'s System of Bact.*, 1930).

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PERSONAL

Engagement.—Mr. W. Lyle Stewart and Miss Ethel M. Walker: The engagement is announced between Captain William Lyle Stewart, M.R.C.V.S., of the Department of Agriculture, Armstrong College, Newcastle-on-Tyne, eldest son of the late Mr. and Mrs. W. N. Stewart, of Shawlands, Glasgow, and Ethel M. Walker, youngest daughter of Mr. and Mrs. T. G. Walker, of Ramerwick Manor, Hitchin, late of Symonds Hyde, Hatfield.

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Will.—Borthwick, Mr. James, M.R.C.V.S., of Kirkliston, West Lothian, farmer (personal estate), £14,007.

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Veterinarian's Thanks Offering.—A thanks offering of £500 has been given to Oban Cottage Hospital by Mr. John M'Dougall, M.R.C.V.S., Oban, who has just recovered from a very serious illness. He has given this fine gift to Oban Hospital in recognition of his recovery and the care and attention of the medical staff and nurses.

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Scottish Branch President.—At the annual meeting of the Scottish Branch, N.V.M.A., held at Stirling, on April 8th, and a report of which will appear in an early issue, Mr. David Cumming

Culter, was elected president of the branch for the ensuing year, with Mr. W. C. Miller of the Institute of Animal Genetics, Edinburgh University, as secretary.

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"VETERINARY SCIENCE AND THE NATION'S HEALTH"

Sir Frederick Hobday, Principal and Dean of the Royal Veterinary College, speaking at a People's League of Health meeting in London, on April 10th, said it was estimated that there were now over one million tuberculous cattle in Great Britain, and in the dairy herds no less than an average of between 30 and 40 per cent. would react to the tuberculin test.

Of these, it was true that only a small proportion had the milk gland so affected as to be actually emitting virulent bacilli in the milk, but between 3,000 and 4,000 children under five years died every year from tuberculosis derived from cow's milk, and some 4,550 people who had pains in the joints, and whose ailment had frequently been diagnosed as rheumatism were really suffering from the result of bovine tuberculosis with which they had been inflicted in early life.

This was a most serious and disgraceful state of affairs to exist in 1933. Hope lay in the collaboration between the medical man, the veterinary surgeon, the dairyman, and the agriculturist.

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LONDON VAN HORSE PARADE

The twenty-fifth annual parade of London van horses, which was held in Regent's Park on Easter Monday, was a splendid success and, as is always the case with this popular feature of Eastertide in the Metropolis, attracted a great throng of spectators.

The number of entries this year (700) was 60 more than last year, and compares favourably with those of pre-War days, when, except for the record entry of 1,058 in 1914, the average figure was round about 650. The largest number of entries were made by dairymen, and consisted mainly of ponies used for milk rounds. The milk carts were, in fact, one of the most imposing features in the prize-winners' parade, and seemed like the well-disciplined commissariat of a vast army. Bakers, laundrymen, and greengrocers also were well represented among the competitors. Nearly 600 first prizes were awarded.

Sir Kynaston Studd, who was accompanied by Lady Studd and by the Sheriffs of the City, arrived in State at the parade and presented the awards.

At a luncheon connected with the parade Sir Hugh Turnbull, Commissioner of the City Police, in referring to the future of horses in the City, said he did not think that there was any risk of legislation being passed to force horses off the streets.

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LABELLING OF GRADED MILK

A case of considerable interest to those concerned with milk nomenclature was heard by the Kensington Magistrates, on Tuesday last, when United Dairies (London), Limited, St. Petersburg Place, Bayswater, were summoned by Chelsea Borough Council for, it was alleged, failing to comply with the terms of a licence granted in relation to the sale of Grade "A" tuberculin-tested milk on March 2nd of this year; failing to comply with the terms of a licence granted in relation to the sale of Grade "A" tuberculin-tested milk on March 8th of this year; and failing to comply with the terms of a licence relating to the sale of Grade "A" tuberculin-tested milk in that an advertisement was issued contrary to such licence.

Mr. Gilbert Paul appeared for the Chelsea Borough Council, and Mr. J. D. Cassels, K.C., and Mr. G. C. Vaughan represented United Dairies (London), Limited.

Mr. Paul said that the summonses were taken under the Milk and Dairies (Amendment) Act, 1922, by which it was laid down that a person should not sell, or offer for sale, or advertise for sale Grade "A" milk except in accordance with a licence granted by the Minister of Health, or by somebody authorised by him. Under the Act an Order had been made called the 1933 Statutory Rules and Orders, which prescribed that each licensing authority should issue a licence upon which should be set forth the conditions upon which it was issued.

Chelsea Borough Council issued on January 1st last a licence to the United Dairies (London) to sell Grade "A" tuberculin-tested milk, and they also issued upon the same date a licence to sell Grade "A" pasteurised milk. It was of some importance to realise the difference, because one of the conditions of the licence was that in Grade "A" tuberculin-tested milk no heat of any sort was applied; but with regard to the pasteurised milk a certain amount of heat was allowed to be given, under certain conditions, to the milk which was then allowed to cool in a certain way.

"What the Legislature has endeavoured rightly to impose," added Mr. Paul, "is that wherever a person shall desire to have Grade "A" tuberculin-tested milk they shall be at once able to see from the label on on the bottle that they have actually got it, and that where they desire Grade 'A' pasteurised milk they shall likewise be able to see that they have it."

Mr. Paul said that the first case related to the sale of a bottle of milk bought by the representative of the Chelsea sanitary inspector from the branch shop in Milner Street, S.W., and the second to a bottle bought from the branch shop in Park Walk, Chelsea. On the instructions of the inspector, Miss Mabel Brown bought on March 2nd, a pint bottle of milk. It bore on it the words "United Dairies," and on the cap the words, "United Dairies Superity Farms." There was no word as to Grade "A" or of what type the milk was.

On March 7th, another representative of the inspector ordered a bottle of milk, and the following day at the Park Walk branch, he was handed a similar bottle bearing a similar label. On March 10th, an advertisement appeared in a West London newspaper in which "Grade 'A' T.T. Pasteurised Milk" was referred to. There was no such milk.

After evidence had been given for the prosecution Mr. Cassels submitted that the company was entitled to sell any kind or any sort of milk. They had not sold as "Grade A T.T." milk something called "Superity Farms." It might be that in the course of their advertisement they had used the expression "Grade A T.T." because that was the foundation of the milk which was called "Superity Farms" milk, and to which cream had been added.

Counsel said he could not admit that the moment a local authority had issued a licence the licensee was bound hand and foot and was obliged always to sell milk with that particular name. He could add cream to it, provided that it was always of the same quality and always had the same amount of butter fat. The milk sold in this case was not only good milk, but was

superior to milk upon the market marked "Grade A T.T." A technical offence only had been committed.

Mr. Ben Davies, a director of the company, said that every effort was made to keep the milk of the same quality every day.

The company was fined £5 on each of the first and second summonses, and was ordered to pay £3 3s. costs on each; on the third they were fined £1 and ordered to pay £3 3s. costs—a total fine of £11 and £9 9s. costs.

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CANCER TREATMENT BY RADIATION

Lord Moynihan, in his capacity as Chairman of the Yorkshire Council, British Empire Cancer Campaign, and Dr. Harold MacIntosh (Hon. Secretary) in the course of a letter published in a recent issue of the *Yorkshire Post*, say: "Of the many problems presented by cancer there stand out two of supreme importance: one, the elucidation of the conditions associated with and giving rise to the disease, and the other its successful treatment. It is common knowledge that surgery and treatment by radiation (X-rays or radium) are the only successful methods in dealing with this condition. In the laboratory it is treatment of afflicted animals by radiation which lends itself most to investigation. For this purpose it is absolutely essential to have at our disposal animals suffering from the disease in a natural form, and this appeal is to those who have in their keeping animals (ranging from the dog to the horse) suffering from cancer in any site of the body.

"We have radium in a suitable form and in sufficient quantity, and, thanks to the munificence of Mr. Harold Sutcliffe, M.P., and his brother, Mr. Norman Sutcliffe, we have an Experimental Station—Lumby Hall, South Milford—suitably equipped, where such treatment can be carried out.

"It is in the control of your readers as to whether these animal patients be sent to us or not, and without their trust in us and their friendly co-operation we shall continue to be greatly hampered in this most important branch of our work.

"All that we ask is that any reader who has in his keeping an animal with a tumour should take it to his veterinary surgeon, who will in the first place decide whether the animal is likely to benefit from such treatment. If he considers that the conditions are favourable he will call us in, and we will do the rest. Furthermore, we will welcome the presence and assistance of the veterinary surgeon whose case it is at the time of treatment, thereby ensuring a direct and continuous link throughout between the owner and ourselves, which in itself should give the owner the confidence he often needs in the absence of his dumb friend."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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"WHAT IS THIS SO-CALLED SEWAGE POISONING IN CATTLE?"

To the Editor of the Veterinary Record.

Sir,—There is an excellent example in Holy Writ of a gentleman giving only part of a quotation when he ought in fairness to have given the whole of it. In my first letter I wrote that "two germs often implicated (in sewage poisoning) are *B. typhosus* and *B. coli communis* (Encyclopædia of Veterinary Medicine, Surgery and Obstetrics). Mr. T. Lishman writes that "Mr. Mayall makes the serious allegation that the veterinary profession in this country uses words to disguise thought." Frankly, I did nothing of the kind. Fortunately we are dealing with the printed word, and what I wrote was: "It is said words are sometimes used to disguise thought (there may be many different degrees of thought—G.M.) and in *veterinary nomenclature* this often appears to be the case." I maintain that this is so, *e.g.*, staggers, farcy, trembles, yellows, scrapie, etc., etc.

I believe Mr. T. Lishman is both a barrister and a veterinary surgeon, and advise him to consult the books in the Library of the Royal College of Veterinary Surgeons, where, I surmise, he will be genially received, and may find something authoritative on "Sewage Poisoning in Cattle."

Yours faithfully,

G. Mayall, M.R.C.V.S.

Bolton.

P.S.—I have only a small library, but I find references to "Sewage Poisoning" on pages 33 and 34 of Sir Frederick Smith's "Veterinary Hygiene," and at page 34 of the *Veterinary Journal*, for 1924, by Sir John Moore. If I can find these in my small library what must there be at Red Lion Square?

G. M.

The Editor acknowledges, with thanks, the receipt of the following:—

Reports of meetings of the North of Ireland and West of Scotland Divisions N.V.M.A., from Mr. T. A. Finch (Lurgan), and Mr. Alex. Thomson, respective Hon. Secretaries.

Communications from Major T. A. B. Cocksedge (Somaliland), Major F. L. Gooch (Stamford), and Mr. J. D. Peele (Durham).

ADVERTISER'S ANNOUNCEMENT

Messrs. C. J. Hewlett and Son, Ltd., 35-42, Charlotte Street, London, E.C.2, are agents for, and can supply from stock, the new surgical instrument tray illustrated below, which has been devised by Mr. Clement Elphick, M.R.C.V.S., of Newcastle-on-Tyne.

This tray possesses several advantages over the ordinary type. It is made of best white porcelain, size 16-in. by 12-in. by 2¼-in., with rounded corners and sloping sides, and is thus easily washed and sterilised. Moulded partitions divide the tray into five compartments, so that instruments may be kept separate, the smaller divisions being particularly useful for surgical needles. In the event of the disinfecting solution being cloudy, the instruments required can easily be found, as the sloping sides cause them to roll to the centre of the compartment, thus obviating the necessity of groping all over the dish as would be the case with the ordinary type. Further, the separate compartments enable the tray to be used for both wet and dry dressings.

Priced at 21s., it can be strongly recommended to veterinary surgeons as an excellent small instrument and dressing tray for general clinical work. The sunk handles allow of easy and safe carrying.